

CLAIMS:

1. SISO decoder for iteratively decoding a block of received information symbols (r), in particular for use in a turbo decoder, said block being divided into a number of windows of information symbols, said SISO decoder comprising:
 - at least one SISO decoding unit (17, 21) for SISO decoding of the received information symbols (r) of a window,
 - a window activity flag storage (23) for storing window activity flags indicating if a window is made active or inactive,
 - a window activity flag setting unit (17) for setting said window activity flag active or inactive, wherein said window activity flags are initially set active and wherein a window activity flag of a window is set inactive if a certitude indication value of the information symbols in said window are above a predetermined certitude threshold,
 - a window activity flag reading unit (17, 22) for reading said window activity flags from said window activity flag storage (23), and
 - a control unit (27) for controlling said at least one SISO decoding unit (17) based on the read window activity flags such that the information symbols of a window for which the corresponding window activity flag is set inactive are not SISO decoded in subsequent iterations.
2. SISO decoder as claimed in claim 1, wherein said certitude indication value is the absolute values of the log-likelihood ratios of the information symbols and wherein a window activity flag of a window is set inactive if the absolute values of the log-likelihood ratios of the information symbols in said window are above a predetermined log-likelihood threshold.
- 25 3. SISO decoder as claimed in claim 1, wherein a SISO decoding unit (17, 21) comprises:
 - a forward processing unit for computing forward state metrics (α),
 - a backward processing unit for computing backward state metrics (β),

- metrics storage means (21) for storing forward and backward state metrics (α , β),
- output means (LLR_out, alpha_out, beta_out) for outputting forward and/or backward state metrics (α , β), and

5 - input means (LLR_in, alpha_in, beta_in) for receiving forward state metrics from a SISO decoding unit that decodes channels symbols of a window being located in front of the currently processed window and for receiving backward state metrics from a SISO decoding unit that decodes channels symbols of a window being located behind the currently processed window.

10 4. SISO decoder as claimed in claim 3, wherein said metrics storage means (21) are adapted for storage of the starting state metrics for forward and/or backward calculations (α , β) of a window.

15 5. SISO decoder as claimed in claim 1, comprising a plurality of SISO decoding units (17) for parallel SISO decoding of the information symbols of a plurality of windows.

6. SISO decoder as claimed in claim 1, comprising a single SISO decoding unit (17) for serial SISO decoding of the information symbols of a plurality of windows.

20 7. SISO decoder as claimed in claim 1, wherein said control unit (27) is adapted for controlling the iterative SISO decoding of the information symbols of the channel data stream such that the iteration is stopped after a predetermined number of iterations or if all windows are made inactive.

25 8. Turbo decoder for iteratively decoding received information symbols, in particular channel symbols of a channel data stream, comprising two SISO decoders (61, 62) as claimed in claim 1 for SISO decoding of said received information symbols, said SISO decoders (61, 62) being arranged in row, each having as inputs the received information symbols and a priori information probabilities of the information symbols generated as output by the respective other SISO decoder (61, 62).

30 9. SISO decoding method for iteratively decoding a block of received information symbols (r), in particular for use in a turbo decoder, said block being divided into

a number of windows of information symbols, said SISO decoding method comprising the steps of:

- SISO decoding of the received information symbols of a window,
- setting a window activity flag active or inactive, which window activity flag

5 indicate if a window is made active or inactive and which are initially set active, wherein a window activity flag of a window is set inactive if a certitude indication value of the information symbols in said window are above a predetermined certitude threshold,

- storing said window activity flag,
- reading a window activity flag of an associated window that shall be SISO

10 decoded next, and

- controlling said SISO decoding based on the read window activity flags such that the information symbols of a window for which the corresponding window activity flag is set inactive are not SISO decoded in subsequent iterations.

15 10. Turbo decoding method for iteratively decoding information symbols, in particular channel symbols of a channel data stream, comprising the steps of SISO decoding method performed in two SISO decoders (61, 62) as claimed in claim 1 for SISO decoding of said information symbols, said SISO decoders being arranged in row, each having as inputs the information symbols and a priori information probabilities of the information symbols

20 generated as output by the respective other SISO decoder.

11. Computer program comprising program code means for causing a computer to perform the steps of the method as claimed in claim 9 or 10 when said computer program is executed on a computer.